## ABSTRACT

System for determining the occupancy of a seat in a vehicle using a variety of transducers and pattern recognition technologies and techniques that applies to any combination of transducers that provide information about seat occupancy. These include weight sensors,

5   capacitive sensors, inductive sensors, ultrasonic, optical, electromagnetic, motion, infrared, and radar among others. The system includes a processor coupled to the transducers for receiving the data from the transducers and processing the data to obtain an output indicative of the current occupancy state of the seat. An algorithm is resident in the processor and is created from a plurality of data sets, each representing a different occupancy state of the seat and being formed

10  from data from the transducers while the seat is in that occupancy state. The algorithm produces the output indicative of the current occupancy state of the seat upon inputting a data set representing the current occupancy state of the seat and being formed from data from the transducers. The algorithm may be a neural network or neural fuzzy algorithm generated by an appropriate algorithm-generating program.